DOCUMENT RESUME

ED 458 022 PS 029 871

| | |
|---|---|
| AUTHOR | Xiang, Zongping; Schweinhart, Lawrence J. |
| TITLE | Ready for Success: Annual Report of the Michigan School Readiness Program. Longitudinal Evaluation. |
| INSTITUTION | High/Scope Educational Research Foundation, Ypsilanti, MI. |
| SPONS AGENCY | Michigan State Board of Education, Lansing. |
| PUB DATE | 2001-01-30 |
| NOTE | 45p. |
| PUB TYPE | Reports - Evaluative (142) |
| EDRS PRICE | MF01/PC02 Plus Postage. |
| DESCRIPTORS | Child Development; Early Childhood Education; Elementary School Students; Grade Repetition; *Learning Readiness; Parent Participation; *Preschool Children; *Program Effectiveness; Program Evaluation; *School Readiness; State Programs |
| IDENTIFIERS | *Michigan |

ABSTRACT

The Michigan School Readiness Program (MSRP), a state-initiated and state-funded preschool program, serves more than 20,000 four-year-olds identified as being at risk for school failure each year. A longitudinal evaluation followed 2 cohorts selected from 7 sites from kindergarten through Grade 3 for Cohort 1 and through Grade 2 for Cohort 2. Each cohort was comprised of one MSRP group and a no-program group similar in age and background. Fourth-year findings show strong evidence for both cohorts for MSRP effects in reducing grade retention. Other program effects were found for Cohort 1, which had more complete data than Cohort 2, on promoting school readiness through Grade 3, promoting child development at kindergarten, and enhancing parenting involvement in school activities. (Appended are additional data analysis for 1999-2000. Nine data tables complete the report.) (KB)

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# Ready for Success:

# Annual Report of the Michigan School Readiness Program Longitudinal Evaluation

January 30, 2001

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For the Michigan State Board of Education

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## EXECUTIVE SUMMARY

The 1999-2000 program year is the fourth year of the Michigan School Readiness Program (MSRP) Evaluation's Longitudinal Study. The MSRP is a state-initiated, state-funded preschool program, serving more than 20,000 4-year-olds across the state each year. The aim of the program is to help children start school ready to learn whose background places them at risk of school failure. Launched by the Michigan State Board of Education and conducted by the High/Scope Educational Research Foundation, this study is evaluating how well the MSRP is achieving its mission.

Over the last four years, the MSRP Evaluation's Longitudinal Study has followed two cohorts of children – from kindergarten through Grade 3 for Cohort 1, and through Grade 2 for Cohort 2. Children for the two cohorts were selected in seven sites across the state. Each cohort consists of a group of children who had participated in the MSRP and a no-program group who were similar to the MSRP children in age and socioeconomic background, but had not attended the MSRP. This design was established to provide a fair comparison from which to identify program effects and places this evaluation in the vanguard of state preschool program evaluations across the U.S. Every year since kindergarten, data have been collected on the two cohorts' developmental outcomes, school readiness, grade level and special services received. Their parents were interviewed concerning involvement in their children's education and their expectations for their children.

*Early Returns* (1997), the Semiannual Progress Report of March,1999, and *Points of Light* (2000) presented the results of the first three years' assessment. Having controlled for the potential influence of key background variables, significant MSRP child outcomes from

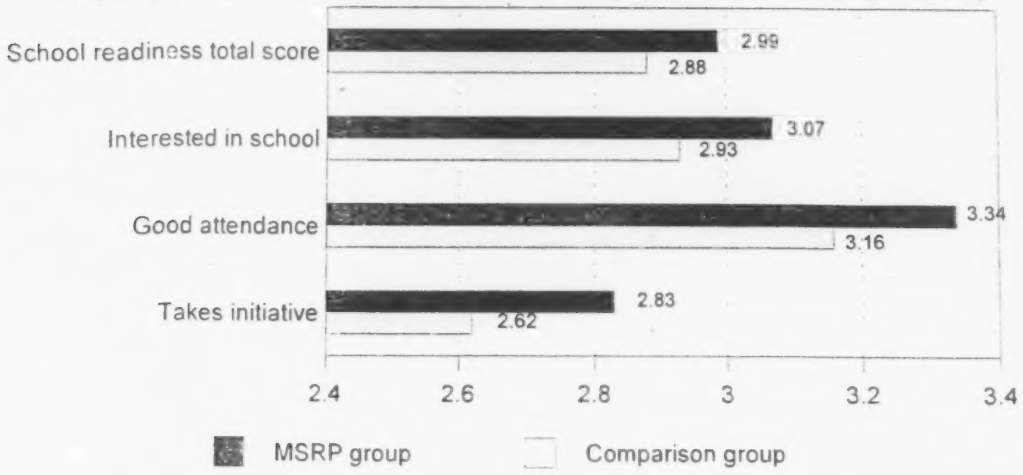
kindergarten through Grade 2 were previously found in Cohort 1.

- Compared to the similar students who had not participated in the program, the students who had participated in the MSRP scored significantly higher in overall development at kindergarten on the Child Observation Record (COR) and 5 of its 6 subscales – *initiative, social relations, creative representation, music and movement,* and *language and literacy* (but not in *logic and mathematics*).
- Compared to the similar students who had not participated in the program, the students who had participated in the MSRP had significantly higher ratings on some items of the School Readiness Rating Scale (SRRS) from kindergarten through Grade 2 – *ready to learn, retaining learning, good attendance*, and *interest in school work.*

This year, more and stronger evidence from Cohort 1 and some evidence from Cohort 2 were found for MSRP effects in analyses that adjusted for group differences in children's background characteristics.

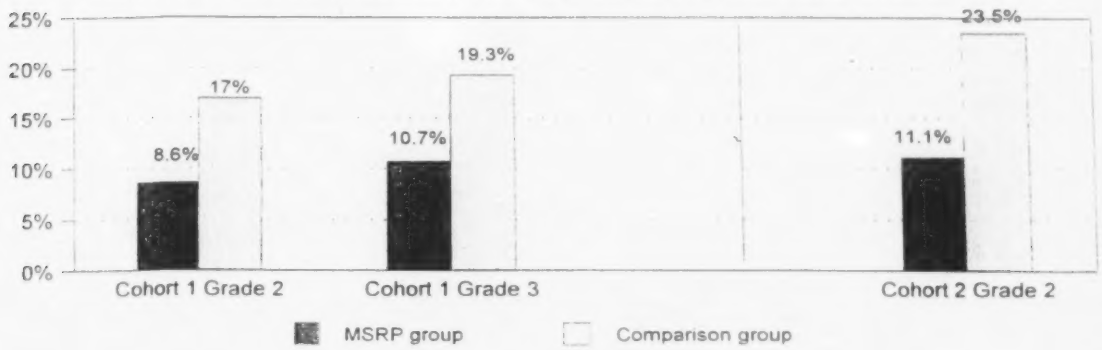
- As Figure A shows, compared to the similar students who had not attended the program, the Cohort 1 MSRP students achieved significantly higher scores on school readiness overall and several specific aspects of readiness for Grade 3. It is the first time in the four years that we found program effects for the overall indicator of school readiness.

## Figure A. School Readiness Rating Scale Scores by Group




- As Figure B shows, students who had attended the MSRP had a significantly lower rate of grade retention than the similar students who had not participated in the program: only about half as many MSRP students were retained. This effect was found in Cohort 1 at Grades 2 and 3 and in Cohort 2 at Grade 2. Given that MSRP serves some 20,000 children a year, a reduction of 10.5 percentage points results in 2,100 children a year saved from repeating a grade.

## Figure B. Grade Retention Rate by Group, Cohort and Grade



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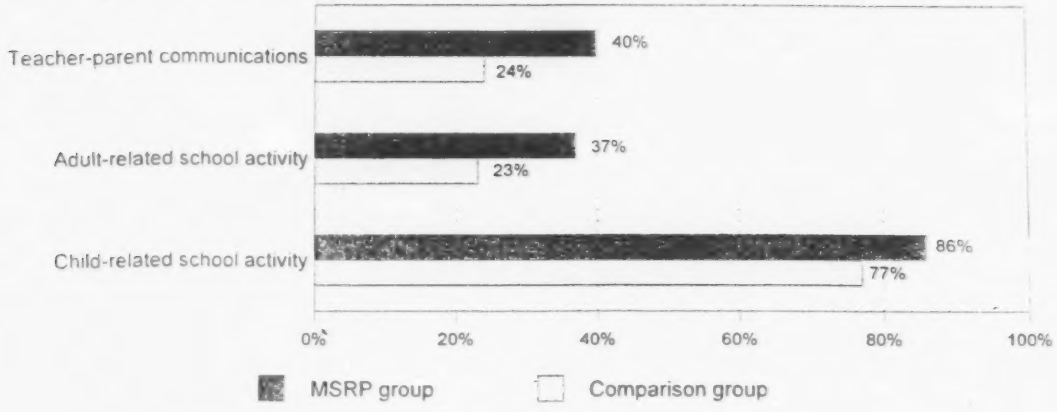
- As Figure C shows, significantly more parents of students who had participated in MSRP than parents of non-participants were found to be frequently involved in school activities and communication with their children's teachers in the first three years of elementary school. No program effects were found on parent involvement in child-related home activities or parents' expectations for their children.

**Figure C. Cohort 1 K-2: Parent Frequent Involvement by Group**




Unfortunately, a large amount of missing data for Cohort 2 created barriers to a reliable test of the MSRP effects in that cohort in general. In some instances, significant differences in favor of the MSRP group (e.g., school readiness at kindergarten) were originally found, but reduced to non-significance in the analyses with adjustment for group differences in children's background characteristics; these analyses had even smaller sample sizes because the cases with socioeconomic data missing were excluded. In other instances, no significant difference was found between the study groups (e.g., child development at kindergarten), or the data were too limited to be analyzed (e.g., parent involvement and expectations).



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Summarizing the major findings for the four years of the study, strong evidence was found, both in Cohort 1 and in Cohort 2, for MSRP effects in reducing grade retention. Other program effects were found for Cohort 1, which had more complete data than Cohort 2, on promoting school readiness through Grade 3, promoting child development at kindergarten, and enhancing parent involvement in school activities.

# 1999-2000 Program Year Report of the Michigan School Readiness Program Evaluation State Longitudinal Study

By September 2000, the Michigan School Readiness Program Evaluation's State Longitudinal Study had completed its fourth year. Launched by the Michigan State Board of Education and conducted by High/Scope Educational Research Foundation, the study is evaluating the implementation and effectiveness of the Michigan School Readiness Program. In this annual report, we present the latest follow-up findings based on data on Cohort 1 through the end of grade 3 and Cohort 2 through the end of grade 2. In addition, findings on parent involvement and parents' expectations are reported for the first time since the beginning of the study. A brief review of the previous findings and a summary of the current status of the study are presented first.

## Review of the Study and its Previous Findings

### The Michigan School Readiness Program

The Michigan School Readiness Program (MSRP) is one of the 31 state-initiated and state-funded preschool programs in the U.S. that are designed to help poor or other children at risk of school failure start school ready to learn. The MSRP initiative began as a small pilot project in 1985 and has grown steadily in the past decade, now operating in 488 of the state's school districts and in 67 other agencies. From its inception through the 1999-2000 school year, the program had served a total of 212,000 children.

## The MSRP Evaluation's State Longitudinal Study

For the last four years, the MSRP Evaluation's Longitudinal Study has followed two cohorts of children from kindergarten through the primary grades. Children for the two cohorts were selected in seven sites from across the state. Cohort 1 consists of two groups of children – a group who attended MSRP classes in the 1995-1996 program year and a no-program group who were similar to the MSRP children in age and socioeconomic background, but did not attend the MSRP. Cohort 2 consists of three groups of children – a group who participated in the 1996-1997 MSRP, a group who participated in Head Start during that program year, and a group who were similar to them but did not participate in a preschool program. Every year since kindergarten, data have been collected on the study participants' developmental outcomes, school readiness, grade level and special services received. Parents of these children were interviewed concerning their involvement in their children's education and their expectations for their children.

## Major Findings of Previous Years

### High Program Quality was Found for Both Cohorts

The quality of 49 MSRP classrooms was assessed by trained observers for Cohort 1, and the quality of 32 classrooms was assessed for Cohort 2. The average total scores on the Program Quality Assessment (PQA) for both cohorts ranged in levels between good and excellent (Cohort 1: mean=4.39 on a 1-5 scale, *SD*=.42; Cohort 2 : mean=4.44, *SD*=.41). Approximately 50 percent of the assessed programs in both cohorts had high PQA total scores (average ratings of 4.50 to 5.00), and no program had a low score (average ratings of 1.00 to 2.99).

**Cohort 1 Effects Found by Analyses with Background Adjustment**

Comprehensive analyses with background adjustment were conducted with the data from Cohort 1, which had a higher rate of complete data than Cohort 2 (discussed below). After statistically controlling for the key covariates (*study site, participants' age, gender, parental level of education, father at home, household size* and *income*), program effects were found in participants' developmental outcomes at kindergarten and school readiness from kindergarten through Grade 2:

- The students who had participated in the MSRP were significantly higher in overall development at kindergarten on the Child Observation Record (COR) and on 5 out of the 6 COR subscales: *language and literacy*, *initiative*, *social relations*, *creative representation*, and *music and movement* (but not in *logic and mathematics*), compared to the students who had not participated in the program.
- The students who had participated in the MSRP had significantly higher ratings on some items of the School Readiness Rating Scale (SRRS): *ready to learn*, *retaining learning*, *good attendance*, and *interest in school work* from kindergarten through Grade 2 than the students who had not participated in the program.
- MSRP participants had a significantly lower rate of retention by grade 2 than their counterparts (8% vs. 15%). However, this analysis was conducted without adjustment for group differences in background characteristics and was therefore considered preliminary to the analysis with adjustment for group differences in background characteristics conducted this year, when data were more complete.

For Cohort 2 as mentioned above, no comprehensive analysis was conducted for any of the

outcome variables due to the limited numbers of study participants who had complete data for covariates as well as outcomes. The simple *t*-test results showed that *kindergarten* teachers rated the students who had attended the MSRP as significantly more ready for school overall and significantly higher on several SRRS items than the students who had not attended the program. By Grade 1, chi-square analysis found a nearly significantly lower rate of grade retention in favor of the MSRP group. However, in COR scores at kindergarten and SRRS scores at Grade 1 no significant differences were detected among groups. This lack of differences in Cohort 2 is inconclusive because of its high rate of missing data overall – at kindergarten, 31 percent of COR and 39 percent of SRRS data were missing; at first grade, 44 percent of SRRS data and 43 percent of grade retention data were missing. The high rate of missing data in kindergarten was partly due to research staff turnover. In subsequent years, priority was given to collecting complete data on Cohort 1 rather than Cohort 2.

In summary, the overall findings in the first three years favored the MSRP children in two respects – program quality and positive impacts on child outcomes, as shown in Table 1.

These analyses did not examine one aspect of the data collected – parent involvement in their children's education and parents' expectations for their children, These analyses were not conducted because of the very limited numbers of parent interviews completed each year. The two major tasks of the 1999-2000 study were trying to solve the problems of missing data as well as following up the MSRP effects on child outcomes to higher grades.

**Table 1. Summary of Previous Findings, 1996 - 1999**

| Type of Assessment | Instrument/Variable | Indication of Positive MSRP Effects | |
|---|---|---|---|
| | | Cohort 1 | Cohort 2 |
| **Program Quality** | PQA (PreK) | 50% high, 0% low | 44% high, 0% low |
| **Child Outcomes** | COR (K) | Yes | No |
| | SRRS (K) | Yes | Yes |
| | SRRS (Grade 1) | Yes | No |
| | SRRS (Grade 2) | Yes | Not applicable |
| | Retention by grade 1 | Not available | Trends |
| | Retention by grade 2 | Yes | Not applicable |

*Note.* Findings for Cohort 1 had background adjustment except for the retention rate through grade 2; findings for Cohort 2 did not.

## THE 1999-2000 DATA COLLECTION AND ANALYSES

In the 1999-2000 school year, Cohort 1 study participants were in Grade 3, and Cohort 2 participants were in Grade 2. This section provides a summary of this year's data collection, a description of the analyses dealing with missing data in parent involvement and expectations and participants' socioeconomic status, and a list of program-effect analyses completed this year. The appendix presents data analysis strategies used to deal with missing data.

### Data Collection for 1999-2000

#### Changes in Data Collection

For each study year beyond kindergarten, the study design involved data collection for three types of assessment – the School Readiness Rating Scale (SRRS, completed by the teachers), the school records review (collected by local school staff), and the Parent Interview

(conducted by telephone interviewers). Because the response rates kept decreasing as the study progressed, we decided to make some changes in data collection procedures in order to focus on certain priorities this year.

First, this year we collected new SRRS data only from Cohort 1 which had enough data on background variables to permit fair group comparisons.

Second, we tightened the focus of the school records review, keeping only the few items that were very important for the evaluation of the MSRP effects, such as grade level and retention, days of school attendance, and a few types of special services received. In addition to collecting this year's records from both cohorts, we tried again to collect the records data for those participants for whom data were missing. This second collection effort was crucial in supplementing limited data on grade level and retention so that more reliable analyses of the retention rates for last year could be completed.

Third, we did not initiate a new round of parent interviews this year, but instead continued to locate the parents of study participants with complete COR or SRRS data from kindergarten but missing family background information. This helped to reduce missing socioeconomic data for both Cohort 1 and 2 so that more of the sample could be used for the analysis of the program effects with background adjustment.

The changes in the data collection plan made it possible to put more effort on the process of data collection, including meeting more frequently with school districts about their problems in data collection, tracking down some of the lost-contact participants with help of schools and public resources, and supervising and sometimes even collecting data directly in schools where data collection had been difficult.

**Increased Response Rate**

As a result of these expanded data collection strategies and efforts, the response rates for this year increased substantially compared to last year: a 10-percentage-point increase for Cohort 1's SRRS (70 % vs. 60%), a 20-percentage-point increase for Cohort 1's school records review (74% vs. 54%), and a 15-percentage-point increase for Cohort 2's school records review (68% vs.53%; see Table 2). In fact, it is the first time the response rates increased since the beginning of the study four years ago. In addition, some participants' school records data (grade level, school attendance, and a few key special services received) that had been missing in each of the previous years were collected this year. With these added data, the school records data rate for the previous years increased by 9 to 27 percentage points, as shown in Table 2.

**Table 2. Number of Study Participants by Cohort, Grade and Type of Data**

| | | School Readiness Rating Scale | | School Records Review | | |
|---|---|---|---|---|---|---|
| **Cohort** | **Grade** | **n** | **%** | ***n*** | **%** | **% After Data Added** |
| 1 | 3 | 420 | 70 | 442 | 74 | 74 |
| | 2 | 360 | 60 | 321 | 54 | 72 |
| | 1 | 445 | 75 | 317 | 53 | 80 |
| | K | 499 | 84 | 513 | 86 | 95 |
| 2 | 2 | – | – | 390 | 68 | 68 |
| | 1 | 322 | 56 | 304 | 53 | 72 |
| | K | 349 | 61 | 438 | 76 | 88 |

Note. The percentages are calculated on the basis of the final study sample sizes (596 for Cohort 1 and 576 for Cohort 2). The two cohorts' study samples are made up of the participants with at least some data from the starting year. They are 96% and 92% of the total identified sample of 623 and 629 for Cohort 1 and Cohort 2 respectively.

The parent interview data collection which started last year and continued to this year helped to collect family background information from a total of 106 study participants for whom we previously had no information. By the end of this year, family background information was available for 88 percent of Cohort 1 and 79 percent of Cohort 2 (see Table 3).

**Table 3. Number of Participants with Family Background Data by Cohort and Year**

| Cohort | Data Collected in Kindergarten | | Additional Data Collected 2-3 Years Later | | Total | |
|---|---|---|---|---|---|---|
| | *n* | % | *n* | % | *n* | % |
| 1 | 448 | 75% | 76 | 13% | 524 | 88% |
| 2 | 425 | 74% | 30 | 5% | 455 | 79% |

Note. Percents are based on original samples of 596 for Cohort 1 and 576 for Cohort 2.

**Preparatory Data Analysis for 1999-2000**

In order to minimize the missing data, some data analysis strategies were employed this year. One of them was to add new data to the socioeconomic variables, after correcting for socioeconomic change over time. The other was to combine parent-interview data across three years of data collection. The appendix presents the details of these strategies.

**Program-Effect Analyses Completed for 1999-2000**

Once we had compiled data for the socioeconomic and parent involvement variables, we could examine the data for evidence of program effects.

**Statistical Approach**

*This year, all the analyses to test for program effects were adjusted for key background*

*status variables of study participants.* For continuous dependent variables such as scores for the COR, SRRS, and parent involvement and expectations, analysis of covariance – essentially analysis of variance within a regression model – was the statistical approach we employed. For the binary dependent variables such as grade retention, we used logistic regression analysis. Both statistical approaches helped to examine the MSRP effects, while estimating the effects of all the other key background variables at the same time. The results of the analyses show whether or not the MSRP has effects on the participants' outcomes (e.g., SRRS scores), while controlling for the potential influence of the other background variables in the model.

**Completed Analyses for Program Effects**

***Cohort 1:*** Because analyses with adjustment of key background variables were already completed for most of the previous years' data, this year's analyses for Cohort 1 focused on Grade 3 data. With more family socioeconomic data and the previous year's school records added this year, a re-analysis of retention by Grade 2 was conducted this year with background adjustment. In addition, analyses of parent involvement and expectations which used the data from kindergarten to Grade 2 were conducted for the first time. The Cohort 1 analyses completed this year tested for program effects on the following measures: School Readiness Rating Scale (SRRS) at Grade 3, grade retention rate by Grades 2 and 3, school attendance and special services received at Grade 3, and parent involvement and expectations (kindergarten to Grade 2)

***Cohort 2:*** Cohort 2 analyses included not only this year's data (grade retention by Grade 2 and special services received at Grade 2), but also the previous years' data on school readiness, child development and grade retention, because no comprehensive analyses had ever been conducted for Cohort 2. The Cohort 2 analyses completed this year tested for program effects on

SRRS for kindergarten and Grade 1, COR for the kindergarten year, grade retention rate by Grades 1 and 2, and school attendance and special services received at Grade 2.

## THE 1999-2000 MAJOR FINDINGS

We next present major findings from the 1999-2000 analyses that tested for MSRP effects over and above the effects of key background status variables. The findings for Cohort 1 are presented first, and then the findings for Cohort 2.

### Findings for Cohort 1

#### School Readiness Findings at Grade 3

*Compared with similar students who had not attended MSRP, students who had attended scored significantly higher on school readiness overall and in specific aspects of readiness for Grade 3.* After statistically controlling for the key covariates as shown in Table 4, the MSRP group was found to score significantly higher than the no-program group on school readiness overall, as indicated by the SRRS total score. This is our first time in the four years of the study to find the SRRS total score significantly higher in favor of the MSRP group by analysis of covariance. *Household income* and *gender* effects were still as strong on SRRS total scores at Grade 3 as they were in the analyses of the past 3 years (See Xiang et al.,1999).

In addition to the SRRS total score, Grade 3 teachers rated the MSRP students significantly higher than their counterparts in *taking initiative, good attendance* and *interest in school work*, as shown in Table 5. Five additional items were nearly significantly different in favor of the MSRP group: *trying out several approaches, retaining learning, literacy skills, thinking skills*, and *good progress to the next grade*. Combining these 8 items with the items that were found significantly or nearly significantly higher for the MSRP group in the previous years

as shown in Table 6, two tendencies of the MSRP effects on child school readiness appear:

- The MSRP students have a more active attitude towards learning from kindergarten through Grade 3, as shown in the repeatedly higher scores for *taking initiative*, *good attendance* and *interest in school work*.
- The MSRP students are better prepared for some learning skills too. *Retaining learning*, which has shown effects for 3 out of 4 years, is one of them. Other items such as *thinking skills* and *literacy skills* showed some impacts this year.

**Table 4. Cohort 1, Grade 3: Analysis of Covariance for School Readiness**

| Covariate | Significance | Who Is More Ready? |
|---|---|---|
| MSRP group vs. no-program group | $p < .05$ | MSRP children |
| Site (6) | *ns* | |
| Program effects by site | *ns* | |
| Gender of participant | $p = .001$ | Females |
| Program effects by gender | *ns* | |
| Age in months | *ns* | |
| Mother's highest year of schooling | *ns* | |
| Father living at home or not | *ns* | |
| Persons per household | $p < .01$ | Children from smaller households |
| Annual household income | $p < .001$ | Higher income children |

***Note.*** Dependent variable is SRRS total score. Sample size for the analysis = 341. Amount of variance explained in the analysis ($R^2$) = 18%.

[1]Sample sizes for all the analyses with adjustment of key covariates are smaller than the numbers presented in Table 2 because of exclusion of the cases who did not have complete data from all the instruments related.

**Table 5. Cohort 1, Grade 3: School Readiness Rating Scale Scores by Group**

| Item | Group | *n* | Mean | *SD* | Statistical Significance[1] |
|---|---|---|---|---|---|
| Takes initiative | MSRP | 182 | 2.83 | .87 | $p < .01$ |
| | No-program | 154 | 2.62 | .88 | |
| Has good attendance | MSRP | 184 | 3.34 | .73 | $p < .01$ |
| | No-program | 157 | 3.16 | .80 | |
| Is interested in school work | MSRP | 184 | 3.07 | .85 | $p < .05$ |
| | No-program | 157 | 2.93 | .89 | |
| Gets along with other children | MSRP | 184 | 3.20 | .77 | *ns* |
| | No-program | 157 | 3.10 | .76 | |
| Gets along with teachers | MSRP | 184 | 3.34 | .70 | *ns* |
| | No-program | 156 | 3.27 | .72 | |
| Is responsible for own errors | MSRP | 184 | 2.88 | .87 | *ns* |
| | No-program | 157 | 2.79 | .86 | |
| Retains learning | MSRP | 184 | 2.94 | .84 | $p = .10$ |
| | No-program | 156 | 2.84 | .85 | |
| Is cooperative | MSRP | 184 | 3.18 | .77 | *ns* |
| | No-program | 157 | 3.17 | .82 | |
| Completes assignments | MSRP | 184 | 3.01 | .93 | *ns* |
| | No-program | 156 | 2.86 | .90 | |
| Is imaginative & creative | MSRP | 182 | 2.87 | .80 | *ns* |
| | No-program | 157 | 2.82 | .76 | |
| Is ready to learn & participate | MSRP | 184 | 3.02 | .87 | *ns* |
| | No-program | 157 | 2.96 | .85 | |
| Tries out several approaches | MSRP | 184 | 2.69 | .89 | $p = .10$ |
| | No-program | 156 | 2.55 | .84 | |
| Has collaborative skills | MSRP | 184 | 2.90 | .93 | *ns* |
| | No-program | 157 | 2.85 | .86 | |
| Has literacy skills | MSRP | 184 | 2.84 | .96 | $p = .08$ |
| | No-program | 157 | 2.69 | .95 | |
| Has math skills | MSRP | 184 | 2.88 | .89 | *ns* |
| | No-program | 156 | 2.77 | .89 | |

**Table 5. Cohort 1, Grade 3: School Readiness Rating Scale Scores by Group**

| Item | Group | *n* | Mean | *SD* | Statistical Significance[1] |
|---|---|---|---|---|---|
| Has good social/emotional development | MSRP | 184 | 2.96 | .85 | *ns* |
| | No-program | 157 | 2.82 | .82 | |
| Has thinking skills | MSRP | 183 | 2.81 | .88 | $p = .06$ |
| | No-program | 157 | 2.69 | .88 | |
| Has physical abilities | MSRP | 182 | 3.20 | .68 | *ns* |
| | No-program | 155 | 3.14 | .57 | |
| Makes good progress to next grade | MSRP | 182 | 2.93 | .94 | $p = .06$ |
| | No-program | 156 | 2.80 | .90 | |
| SRRS total | MSRP | 184 | 2.99 | .654 | **$p < .05$** |
| | No-program | 157 | 2.88 | .650 | |

[1]Statistical significance testing was conducted with analysis of covariance controlling for group differences in children's background characteristics.

**Table 6. Cohort 1: Kindergarten - Grade 3: SRRS Items Significantly or Nearly Significantly Higher for MSRP (Controlled for Key Covariates)**

| | Evidence of Program Effects (Controlled for Covariates) | | | |
|---|---|---|---|---|
| **SRRS Item** | **Kindergarten** *n*=400 | **Grade 1** *n*=369 | **Grade 2** *n*=275 | **Grade 3** *n*=341 |
| Takes initiative | $p<.10$ | *ns* | *ns* | **$p<.01$** |
| Has good attendance | *ns* | **$p<.05$** | *ns* | **$p<.01$** |
| Is interested in school work | *ns* | *ns* | **$p<.05$** | **$p<.05$** |
| Tries out several approaches | *ns* | *ns* | *ns* | $p<.10$ |
| Is ready to learn | **$p<.05$** | $p<.10$ | *ns* | *ns* |
| Retains learning | **$p<.05$** | **$p<.05$** | *ns* | $p<.10$ |
| Has literacy skills | *ns* | *ns* | *ns* | $p<.10$ |
| Has thinking skills | *ns* | *ns* | *ns* | $p< 10$ |
| Has physical ability | *ns* | *ns* | $p<.10$ | *Ns* |
| Makes good progress to next grade | *ns* | *ns* | *ns* | $p<.10$ |

***Note.*** Because of re-analyses of the data with additional socioeconomic data this year, there is a little change in the previous years' items presented here from what was presented in *Points of Light*.

An explanation for finding significantly higher SRRS total scores and a larger number of significant and nearly significant item scores for the MSRP group this year is the inclusion of the retained students in the analyses, which had not been the case in previous years. This is illustrated by the results of analysis that would have excluded the retained students, as shown in Table 7. The gap between the average SRRS total scores of the two groups was .11 in the current analysis which included the retained students. However, the gap would have become narrower by .05 point if the analysis had excluded the retained students.

**Table 7. Cohort 1, Grade 3: SRRS Total Score by Inclusion of Retained Students**

| | Retained Students Included | | Retained Students Excluded | |
|---|---|---|---|---|
| **Group** | ***n*** | **Mean** | ***n*** | **Mean** |
| MSRP | 184 | 2.99 | 174 | 3.00 |
| No-program | 157 | 2.88 | 128 | 2.94 |
| Significance | $p < .05$ | | *ns* | |

***Note.*** The significant tests were conducted by the analysis of covariance.

This is because the no-program group had significantly more retained students than the MSRP group (as indicated by the number of cases excluded for each group, 10 from the MSRP group vs. 29 from the no-program group). Because retained students usually get lower scores than the non-retained ones, the exclusion of the retained students would have raised the mean scores for the no-program group to a greater extent than for the MSRP group (.06 for the no-program group vs .01 for the MSRP group). As a result, the significant difference found in the

analysis with retained students would have lost its statistical significance in an analysis without the retained students. This year, because the same SRRS scale was employed across grades, all the participants' SRRS scores, whether they were retained or not, were included in an overall analysis, thus guaranteeing a fair comparison between the two groups. However, taking into account the potential bias related to the exclusion of the retained students, it is quite possible that the MSRP effects on SRRS scores were underestimated last year, when the no-program group was also found to have a significantly higher rate of grade retention, but due to the different scale used for the retained students, their SRRS scores had not been able to be included in an overall analysis in comparison of the two groups.

**Grade Retention Findings by Grades 2 and 3**

*Students who had participated in MSRP had a significantly lower rate of grade retention by Grades 2 and 3 than similar students who had not participated in the program.* As shown in Table 8, the MSRP group had almost half as many retained students as the no-program group by Grade 2 (8.6% vs. 17.0%) and by Grade 3 (10.7% vs. 19.3%).

**Table 8. Cohort 1, Grades 2 and 3: Retention Rate by Group and Grade**

| | Grade 2 | | Grade 3 | |
|---|---|---|---|---|
| **Group** | ***n*** | **%** | ***n*** | **%** |
| MSRP group | 255 | 8.6[1] | 262 | 10.7 |
| No-program group | 182 | 17.0[1] | 197 | 19.3 |
| Total sample | 437 | 12.1 | 459 | 14.4 |

[1] With additional grade 2 data on 62 participants added this year, the retention rates presented here are a little higher than those presented in *Points of Light* (8% vs.15%). The grade 2 sample of 437 children was 73% of the original Cohort 1 sample of 596 children, and the Grade 3 sample of 459 children was 77% of the original Cohort 1 sample.

Results of logistic regression analysis in Table 9 confirmed MSRP effects on reducing

grade retention while controlling for the influence of *age*, *gender*, *family socioeconomic status* and *study site*.

By grade retention, we mean any form of extra or repeated years since the beginning of kindergarten. Table 10 presents results of an analysis of whether the availability of developmental kindergarten (an additional year at kindergarten to get ready for school) in some districts influenced the retention rates. No difference was found in retention rates whether developmental kindergartens were available or not (13.9% vs.13.5%).

**School Records Findings at Grade 3**

*Students who had participated in MSRP had significantly fewer days absent at Grade 3 than similar students who had not participated in the program.* Table 11 presents the average days of absence for both groups at Grade 3.

**Table 9. Cohort 1, Grades 2 and 3: Analysis of Logistic Regression for Grade Retention**

| | **Significance** | | |
|---|---|---|---|
| **Covariate** | **Grade 2** $n = 350$ | **Grade 3** $n = 372$ | **Who Is Retained Less?** |
| MSRP vs. no-program | ***p*<.05** | ***p*<.01** | MSRP group |
| Gender | *p*<.10 | *p*<.10 | Females |
| Age in months | ***p*<.05** | ***p*<.05** | Older children |
| Site (6) | ***p* <.01** | ***p*<.01** | Some sites. |
| Mother's years of schooling | *ns* | *p*=.10 | Children of more-schooled mothers |
| Father living at home or not | *ns* | *ns* | |
| Persons per household | *ns* | *ns* | |
| Annual household income | ***p*<.05** | *ns* | Children in higher-income families |

**Table 10. Cohort 1, Grade 3: Retention Rate by Developmental Kindergarten Availability**

| Developmental Kindergarten Status | No Retention | | Retention | | Total |
|---|---|---|---|---|---|
| | *n* | % | *n* | % | |
| Available | 149 | 86.1 | 24 | 13.9 | 173 |
| Not available | 211 | 86.5 | 33 | 13.5 | 244 |
| Total | 360 | 86.3 | 57 | 13.7 | 417 |

**Table 11. Cohort 1, Grade 3: Days Absent by Group**

| Group | *n* | Mean | Standard Deviation | Significance |
|---|---|---|---|---|
| MSRP | 234 | 7.9 | 6.91 | $p<.05$ |
| No-program | 175 | 9.7 | 9.41 | |

When adjusted for the key covariates, the analysis confirmed the MSRP effects on the students' school attendance. This result supported the teachers' higher ratings on good attendance for the MSRP group.

*No program effects were found for the special services received at Grade 3.* In this year's school records review, data for four types of special services received were collected: *compensatory education, placement in special education, appointments with reading specialist,* and *consultation/tutoring for learning disability.* No group difference was found for any of the items in these analyses with or without background adjustment (See Appendix Tables A7-A9).

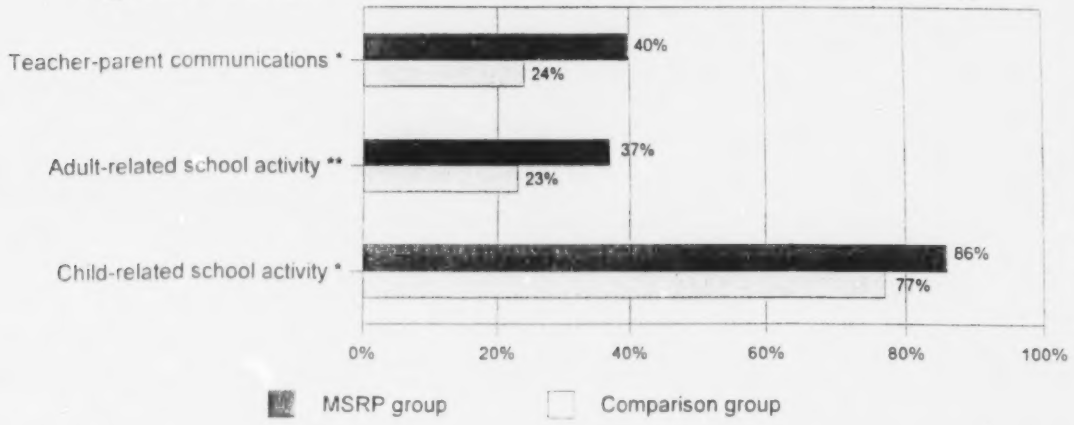
**Findings for Parent Involvement and Expectations**

*Parents whose children had participated in MSRP were significantly more involved in school activities and communication with teachers during the first three years of school, compared with similar parents whose children had not participated in the program.* Of the 6

subscale of parent involvement and expectations listed in Table 12, program effects were found for 3 after controlling for the influence of *study site* and *family socioeconomic status*. The results presented in Table 12 are in form of standard scores (*Z* scores), which were employed for the purpose of combining the three years data on the same scale so as to achieve the largest possible sample size. Figure 1 lists the items on which the MSRP parents were more frequently involved in school activities and communication with their children's teachers.

Figure 1 shows that in *teacher-parent communications* (parent conferences, talking to each other about child, and receiving and sending notes/phone calls from each other), 40 percent of the MSRP parents were involved once a month or more, compared to 24 percent of the non-MSRP parents. In *adult-related school activities* (PTA, parent education workshop, parent-to-parent outreach, newsletter distribution, and fund-raising), 37 percent of the MSRP parents participated more than once every four months, compared to 23 percent for the non-MSRP parents. In *child-related school activities* (special events, field trips, classroom observations/ assistance, helping with food/materials, and making presentations to the class) in the first three years of primary school, 86 percent of the MSRP parents were involved more than once every two months, compared to 77 percent of the non-MSRP parents.

## Figure 1. Cohort 1 K-2: Parent Frequent Involvement by Group




***Note.*** *n* =376; * = $p<.05$; ** = $p<.01$. Key covariates=*study site, mothers' education, father at home, household size*, and *household income*. *Frequent involvement in child-related school activity* = more than once every two months. *Frequent involvement* in *adult-related school activity* = more than once every four months *Frequent involvement in teacher-parent communications* = once a month or more.

**Table 12. Cohort 1, Kindergarten - Grade 2: Parent Involvement and Expectations by Group**

| Subscale | Group | *n* | Mean[2] (*Z* score) | *SD*[2] (*Z* score) | Statistical Significance[3] |
|---|---|---|---|---|---|
| **Involvement in child-related school activity[1]** | MSRP | 224 | -.08 | 1.06 | ***p*<.05** |
| | No-program | 152 | -.19 | .93 | |
| **Involvement in adult-related school activity[1]** | MSRP | 224 | .11 | 1.16 | ***p*<.01** |
| | No-program | 152 | -.21 | .80 | |
| **Teacher-parent communication[1]** | *MSRP* | 224 | -.02 | 1.07 | ***p*<.05** |
| | No-program | 152 | -.22 | .86 | |
| **Child-related home activities[1]** | MSRP | 224 | -.00 | 1.05 | *ns* |
| | No-program | 152 | -.16 | 1.04 | |
| **Expectations for child's highest year of education[1]** | MSRP | 223 | -.05 | .96 | *ns* |
| | No-program | 152 | -.13 | 1.07 | |
| **Expectations for child performance next year[1]** | MSRP | 224 | -.02 | .98 | *ns* |
| | No-program | 151 | -.05 | .98 | |

[1]See the text for operational definitions of the subscale.

[2]The original scores were standardized on the basis of each year's sample instead of one overall sample, each year's mean = 0 and standard deviation = 1.

[3]Statistical significance testing was conducted with analysis of covariance controlling for group differences in children's background characteristics.

However, no program effects were found in parent involvement in child-related home activities (reading to child, listening to child reading, helping with homework, and visiting library /museum) or in parents' expectations for their children's education, in the long or short run (highest years of education and performance in the next school year parents expected for their children).

**Summary of the Cohort 1 Findings**

Following the previous years' findings of positive program effects on child development and school readiness from kindergarten through Grade 2, this year's analyses provided more and stronger evidence for the MSRP effects in promoting children's school readiness and reducing grade retention. After controlling for the key background variables, the MSRP students achieved significantly higher scores on school readiness overall (SRRS total score) at Grade 3 and an 8-percentage-point lower rate of grade retention by Grades 2 and 3, compared to the similar students who had not participated in the program. All of these findings indicate that MSRP impacts last beyond the first two years of elementary school.

In addition to program effects found for the participants, MSRP effects were detected for the parents of the participants. With adjustment of key socioeconomic variables, parents of students who had attended MSRP were found significantly more involved in school activities and in their communication with teachers, compared to the parents of students who had not attended the program. However, no program effects were found on parent involvement in child-related home activities or parents' expectations for their children.

**Findings for Cohort 2**

Before presenting the Cohort 2 findings, it is important to note that the sample sizes for the following analyses were quite limited – only around 50 percent of the final study sample for the analyses with adjustment of background variables, as shown in Table 13. Such attrition raises the possibility that differential group attrition can bias group comparisons on outcome variables. For this reason, it was critical to adjust for group differences in children's background characteristics by analysis of covariance and regression analysis.

**Table 13. Cohort 2: Sample Size by Type of Data**

| | Data on This Measure | | Data on All Measures | |
|---|---|---|---|---|
| **Outcome Variables** | ***n*** | *%* | ***n*** | *%* |
| COR (kindergarten) | 399 | 69% | 289 | 50% |
| SRRS (kindergarten) | 349 | 61% | 275 | 48% |
| SRRS (Grade 1) | 322 | 56% | 251 | 44% |
| Grade Retention information (Grade 1) | 395 | 69% | 298 | 52% |
| Grade Retention information (Grade 2) | 390 | 68% | 295 | 51% |

***Note.*** The percentages were calculated on the basis of final study sample size of 576.

The amount of missing data has been a problem for Cohort 2 since it was first established. Compared with Cohort 1, about 10 percent less COR data and 23 percent less kindergarten SRRS data were collected for Cohort 2 in the first year of the study (see also Table 2). This resulted in Cohort 2's smaller sample sizes than Cohort 1's in subsequent years. The sample sizes for the comprehensive analyses are even smaller than those for analyses of individual outcome variables because of the exclusion of the cases with missing socioeconomic data, such as household income and mothers' education.

**School Readiness Findings for Kindergarten and Grade 1**

*Although students who had attended MSRP were found to be significantly higher in school readiness overall on SRRS total and on some of SRRS items at kindergarten in previous analyses that did not apply covariates, no program effects in school readiness were found for either kindergarten or Grade1 after controlling for key covariates.* Table 14 presents the results of the analysis of covariance for SRRS for both years. Table 15 provides the descriptive statistics for the SRRS total scores by study group and grade.

**Table 14. Cohort 2, Kindergarten and Grade 1: Analysis of Covariance for School Readiness**

| Covariate | Significance: Kindergarten *n*=275 | Significance: Grade 1 *n*=251 | Who Is More Ready? |
|---|---|---|---|
| MSRP group vs. Head Start group vs. no-program group | *ns* | *ns* | |
| Site (5) | ***p* <.05** | **p =.01** | Some sites |
| Program effects by site | *ns* | *ns* | |
| Gender | ***p* <.05** | ***p* <.01** | Females |
| Program effects by gender | *ns* | *ns* | |
| Age in months | *ns* | *ns* | |
| Mother's highest year of schooling | *ns* | *ns* | |
| Father living at home or not | *ns* | *ns* | |
| Persons per household | *ns* | *ns* | |
| Annual household income | ***p* <.05** | ***p* =.001** | Children from higher-income families |

**Note.** The amount of variance explained in the analysis ($R^2$) was 14% for kindergarten and 19% for Grade 1. For the kindergarten analysis: *n*=103 for the MSRP group, 83 for the no-program group, and 89 for Head Start group. For the Grade 1 analysis: *n*=101, 68, 82 for the three groups respectively.

**Table 15. Cohort 2, Kindergarten and Grade 1: School Readiness by Group and Grade**

| Group | Kindergarten | | | Grade 1 | | |
|---|---|---|---|---|---|---|
| | *n* | Mean | *SD* | *n* | Mean | *SD* |
| MSRP | 119 | 2.66 | .36 | 123 | 2.44 | .44 |
| Head Start | 116 | 2.53 | .45 | 97 | 2.35 | .48 |
| No-program | 114 | 2.52 | .47 | 102 | 2.39 | .53 |

*Note.* – Scores are averages of all items on the School Readiness Rating Scale.

**COR Findings for Kindergarten**

*No program effects were found for children's development on the COR at kindergarten, with or without adjustment of key covariates.* Table 16 provides the COR total and subscale scores with adjustment of key covariates for the MSRP, no-program and Head Start groups.

**Table 16. Cohort 2, Kindergarten: COR Scores by Group**

| | MSRP Group($n$=107) | | Head Start Group ($n$=96) | | No-Program Group ($n$=86) | |
|---|---|---|---|---|---|---|
| **COR Score** | **Mean** | ***SD*** | **Mean** | ***SD*** | **Mean** | ***SD*** |
| Initiative | 3.35 | .54 | 3.38 | .60 | 3.40 | .62 |
| Social relations | 3.19 | .61 | 3.21 | .62 | 3.25 | .67 |
| Creative representation | 3.50 | .74 | 3.66 | .70 | 3.46 | .73 |
| Music and movement | 3.74 | .71 | 3.70 | .77 | 3.82 | .76 |
| Language and literacy | 2.98 | .49 | 3.01 | .46 | 3.04 | .53 |
| Logic and mathematics | 3.38 | .51 | 3.44 | .58 | 3.32 | .56 |
| COR total | 3.35 | .37 | 3.40 | .38 | 3.38 | .44 |

**Grade Retention Findings by Grade 1 and 2**

*By Grade 1, a nearly significantly lower rate of grade retention for the MSRP group was detected in the analysis without background adjustment. By Grade 2, analyses with background adjustment found MSRP effects in reducing grade retention, compared to similar students who had not attended any preschool program.* As Table 17 shows, the MSRP group had less than half as many retained students as the no-program group both years. Table 18 provides the results of the logistic regression analyses testing for program effect after adjusting for background variables.

**Table 17. Cohort 2, Grades 1 and 2: Retention Rate by Group and Grade**

| | Grade 1 | | Grade 2 | |
|---|---|---|---|---|
| **Group** | ***n*** | ***%*** | ***n*** | ***%*** |
| MSRP | 154 | 3.9 | 153 | 11.1 |
| Head Start | 117 | 6.8 | 118 | 17.8 |
| No-program | 124 | 10.5 | 119 | 23.5 |
| Total | 395 | 6.8 | 390 | 16.9 |

***Note.*** The Grade 1 sample size of 395 was 69% of the original sample size of 576, and the Grade 2 sample size of 390 was 68%.

Table 18 indicates that compared to the no-program group, the MSRP group had a significantly lower rate of grade retention by Grade 2 after controlling for the influence of *age*, *gender*, *study site* and *family socioeconomic status*. In addition, the retention rate for the Head Start group was nearly significantly lower than that of the no-program group by Grade 2, tested with adjustment for background characteristics. Table 17 presents percentages retained by group *without* adjustment for background characteristics. Adjusted for background characteristics, retention rates through Grade 2 were 8.8% for the MSRP group, 9.8% for the Head Start group, and 19.8% for the no-program group. In other words, both MSRP and Head Start were found to cut grade retention in half.

**School Records Findings at Grade 2**

*With adjustment for key background status, no program effects were found either in the days absent at Grade 2 or the special services received at Grade 2.* A nearly significant difference was detected in the days of school attendance in favor of the MSRP group without adjustment of the key covariates (see Appendix Table A8).

**Table 18. Cohort 2, Grades 1 and 2: Analysis of Logistic Regression for Grade Retention**

| | Significance | | |
|---|---|---|---|
| **Covariate** | **Grade 1** $n = 298$ | **Grade 2** $n = 295$ | **Who is Retained Less?** |
| MSRP group vs. no-program group | *ns* | **$p<.05$** | MSRP group |
| Head Start group vs. no-program group | | $p<.10$ | Head Start group |
| Gender | *ns* | **$p<.05$** | Females |
| Age in months | **$p=.001$** | **$p<.001$** | Older children |
| Site (5) | *ns* | **$p< .01$** | Some sites |
| Mother's highest year of schooling | *ns* | *ns* | |
| Father living at home or not | *ns* | *ns* | |
| Persons per household | $p<.10$ | *ns* | Children from smaller households |
| Annual household income | *ns* | **$p< .01$** | Children from higher-income families |

**Summary of the Cohort 2 Findings**

For Cohort 2, MSRP effects were found for reducing grade retention by 12 percentage points by Grade 2 as compared to the similar students who had not attended any preschool program, with a similar trend for the Head Start group. This is the only effect that held up in the Cohort 2 analyses that adjusted for background variables. Although significant differences were detected in school readiness in favor of the MSRP group at kindergarten before the adjustment of key background status variables, these differences became insignificant when program effects were tested over and above the effects key background status variables. In child development at kindergarten and school readiness at Grade 1, no program effects were found, with or without background adjustment.

The large amount of missing data (about 50% missing in the analyses with adjustment of covariates) may be one of the reasons for lack of significant findings. Another reason may be the relatively smaller sample size for each of the study groups for Cohort 2, which has 3 study groups, compared with two for Cohort 1. Therefore, even with approximately the same number of total participants for both cohorts, the sample size for *each* of the study groups in Cohort 2 would be smaller by about 100 children than the study groups in Cohort 1.

## Overall Summary of the 1999-2000 Findings

*On the bases of previous findings for MSRP effects on child development at kindergarten and school readiness from kindergarten through Grade 2, this year's findings for Cohort 1 continued to support MSRP effects in promoting children's school readiness and reducing grade retention, with even stronger evidence at Grade 3. Furthermore, MSRP effects on enhancing parent involvement in school activities and communication with their children's teachers were brought to light for the first time.*

*Taking into account this year's findings for Cohort 2, MSRP effects in reducing grade retention became even more prominent. Students who had participated in the MSRP had a significantly lower rate of retention than the students who had not participated in the program, and students who had attended Head Start demonstrated a similar trend. This effect was found in both cohorts by Grade 2, and was further supported by the similar findings at Grade 3 for Cohort 1.*

*Unfortunately, the large amount of missing data for Cohort 2 created barriers to a reliable test of MSRP effects in that cohort in general. In some cases significant differences in favor of the MSRP group (e.g., school readiness at kindergarten) were found, but reduced to non-significance in the analyses with background adjustment, which had even smaller sample sizes*

*due to the exclusion of the cases with socioeconomic data missing. In other cases, no difference was found among the study groups (e.g., child development at kindergarten), or the data were too limited to be analyzed (e.g., parent involvement and expectations).*

*In summary, MSRP effects in promoting child school readiness, especially in reducing grade retention have found strong evidence in Cohort 1 and Cohort 2. Other program effects on promoting child development and enhancing parent involvement in school activities were found in Cohort 1. Further evaluation of MSRP should look for such effects in younger cohorts who have experienced the program more recently.*

## APPENDIX

### Additional Data Analyses for 1999-2000

The appendix presents two preparatory data analysis strategies employed this year to minimize missing data and a series of tables presenting group comparisons on school records data. One of the data analysis strategies was adding new data to the socioeconomic variables that permitted statistical adjustment for group differences. The other was combining parent-interview data across three years of data collection.

**Compiling Socioeconomic Variables from Two Years of Data**

As noted before, family background variables were added to last year's parent interview to supplement the socioeconomic data missing from the kindergarten data collection. Because the supplemental data described conditions 3 years later than the kindergarten data for Cohort 1, and 2 years later for Cohort 2, the later socioeconomic data were compared with kindergarten socioeconomic data to check for consistency. Although no major differences were found for other socioeconomic variables, a striking discrepancy was detected in household income, as Table A1 shows. This increase is due to the improvement in Michigan's economy and to additional improvements in families' income during these years, mainly because mothers started working.

The discrepancy in the two years' household income indicated that these data could not be used without taking this discrepancy into account. Some adjustments had to be made to set up a unified scale. Because kindergarten data were more abundant, they served as the basis to which the additional data were adjusted. Thus, for Cohort 1, the income data for 91 cases were adjusted to the kindergarten income data already available for 192 cases. The same approach was used for the few added cases in Cohort 2.

**Table A1. Household Income by Cohort and Year of Data Collection**

| | Kindergarten | | 2-3 Years Later | |
|---|---|---|---|---|
| Cohort | n | Mean | n | Mean |
| 1 | 393 | $17,432 | 292 | $29,015 |
| 2 | 355 | $15,901 | 159 | $24,261 |

The approach we employed for the estimation of kindergarten income for the study participants with Grade 2 data had only four steps: First, calculate the increased amount of income between kindergarten and Grade 2 for the participants who had both years' information. Second, find out which socioeconomic factors were related to the increased income. Third, based on the relationship between the increased income and other socioeconomic factors, estimate the increased amount of income for the participants who had only Grade 2 data. Fourth, remove the estimated increased amount from Grade 2 income so as to get the estimated kindergarten income.

To begin the estimation process, a regression analysis was conducted for about 200 participants who had data for both years. The results indicated that three family socioeconomic factors were associated with the increased income from kindergarten to Grade 2 for Cohort 1: *father at home status* (fathers at home at Grade 2 had greater income increases); *parents' total years of working during the period* (the more years the parents worked during the period, the more their income increased); and *mothers' additional years of education during the period* (the more years of additional education the mother had during the period, the more their income increased). With these three variables and the Michigan inflation rates for these years taken into account, estimation of the kindergarten income was made for the 91 participants from their Grade

2 income data. To examine the effects of the estimation, the reported kindergarten income was compared with the estimated kindergarten income as shown in Table A2, and the correlations between the reported income and child outcomes were compared to the correlations between the estimated income and the child outcomes as shown in Table A3. The similarity of the reported and estimated income means and the similarity of their correlations with school readiness scores provides the evidence of validity for employing the estimated income for further comprehensive analysis of program effects.

**Table A2. Cohort 1: Reported Versus Estimated Family Income at Kindergarten**

| Source of Kindergarten Income Data | *n* | Mean | *SD* | Statistical Significance |
|---|---|---|---|---|
| Reported | 186 | $19,457 | $11,938 | |
| Estimated | 91 | $20,171 | $14,292 | $p > .05$ |

Note. Data from 2 sites are not included in the reported data, because no estimated data are from these sites. *SD*=standard deviation.

**Table A3. Cohort 1: Correlations of Reported and Estimated Income with SRRS Total Scores**

| Type of Kindergarten Income | Kindergarten SRRS | | Grade 1 SRRS | | Grade 2 SRRS | | Grade 3 SRRS | |
|---|---|---|---|---|---|---|---|---|
| | *n* | *r* | *n* | *r* | *n* | *r* | *n* | *r* |
| Reported | 324 | .17** | 291 | .29** | 226 | .23** | 272 | .20** |
| Estimated | 71 | .17 | 83 | .21 | 51 | .34* | 74 | .29* |

Note. Scores are averages of all items on the School Readiness Rating Scale; *n* = number of cases. *r* = correlation coefficient. * = $p<.05$, ** = $p<.01$.

**Compiling Parent Variables from Three Years of Data**

One of the purposes of the MSRP evaluation is to assess whether the program helps parents contribute to children's development and readiness for school participation. The measures related include parent involvement in school and home activities and parents' expectations for their children's education. Beginning in the kindergarten year, the parent interview was conducted each year for three consecutive years for Cohort 1 and two consecutive years for Cohort 2. However, the data were very difficult to collect for a variety of reasons: unavailability of phone numbers, no answers despite many calls, avoidance or refusal, disconnections because of moving or other reasons, etc. The sample size each year was so limited (see Table A4) that no analysis of these data had ever been conducted.

**Table A4. Number of Parent Interviews Completed, by Cohort and School Year**

| Cohort | Kindergarten | | Grade 1 | | Grade 2 | |
|---|---|---|---|---|---|---|
| | *n* | % | *n* | % | *n* | % |
| 1 | 179 | 30% | 265 | 44% | 307 | 52% |
| 2 | 255 | 44% | 171 | 30% | – | – |

Note. The percentages are calculated on the basis of the final study sample size (596 for Cohort 1 and 576 for Cohort 2).

Given the relatively incomplete parent data set for any single year, we decided to combine the three years of data for Cohort 1. If the levels of parents' expectations and involvement in their children's education remained quite stable across these three years of school, it would be valid to derive the parents' level of expectations and involvement from any one of the three years of available data. The advantage of this approach is that a much higher proportion of the sample

could be obtained to test for potential MSRP effects on parents. In compiling the 3 years of data, all the parent interview data for Grade 2 were used. If a participant did not have Grade 2 data, then the Grade 1 data, if available, were used. Similarly, if a participant did not have either Grade 2 or Grade 1 data, the kindergarten data available were employed. As a result, the derived data set had 433 children in all (307 from Grade 2, 81 from Grade 1, and 45 from kindergarten) – fully 73 percent of the study sample – a much larger sample size than for any other single year.

As shown in Table A5, the derived parent data set has a well-balanced distribution of participants across its 6 study sites, and the ratios of the MSRP and no-program groups were similar to those in the original study sample.

**Table A5. Cohort 1: Number of Participants in the Original and Derived Parent Data Sets, by Group and Site**

| Site | MSRP Group | | | No-Program Group | | | Total Sample | | |
|---|---|---|---|---|---|---|---|---|---|
| | Derived | Original | % | Derived | Original | % | Derived | Original | % |
| COOR | 40 | 45 | 89 | 32 | 44 | 73 | 72 | 89 | 81 |
| Detroit | 47 | 52 | 90 | 35 | 53 | 66 | 82 | 105 | 78 |
| Port Huron | 53 | 63 | 84 | 35 | 46 | 76 | 88 | 109 | 81 |
| Kalamazoo | 31 | 53 | 58 | 19 | 38 | 50 | 50 | 91 | 55 |
| Muskegon | 54 | 75 | 72 | 26 | 37 | 70 | 80 | 112 | 71 |
| Wyoming | 35 | 50 | 70 | 26 | 40 | 65 | 62 | 90 | 69 |
| Total | 260 | 338 | 77 | 173 | 258 | 67 | 433 | 596 | 73 |

Parents' involvement in and expectations for their children's education remained quite

stable across the 3 years for Cohort 1, as evidenced by stable standardized-score means identified by within-subjects effect analysis for the participants who had all the three years of data. Table A6 presents the results of this analysis. As a result, the derived parent data set for Cohort 1 enabled us to examine the potential MSRP effects on parent involvement and expectations for the first time in the four years of the study.

**Analyses of School Records Variables**

Tables A7 to A9 present Cohort 1 group comparisons of school records variables. Table A7 presents special services received and Table A8 presents days absent for Cohort 1; and Table A9 presents special services received for Cohort 2. No statistically significant group differences were found for any of these variables.

**Table A6. Cohort 1, Kindergarten - Grade 2: Results of GLM Repeated Measures Analysis for Within-Subject Effects Using Subscale *Z* Scores across 3 Years**

| Subscale | Grade | Mean [1] (*Z* score) | *SD* [1] (*Z* score) | Significance for within-subject effects |
|---|---|---|---|---|
| **Involvement in child-related school activities** | K | .14 | .94 | $p$=.96 |
| | 1 | .10 | 1.08 | |
| | 2 | .11 | .96 | |
| **Involvement in adult-related school activities** | K | -.00 | .92 | $p$=.23 |
| | 1 | .06 | .78 | |
| | 2 | .01 | .99 | |
| **Teacher-parent communication** | K | .07 | .96 | $p$=.07 |
| | 1 | .10 | 1.06 | |
| | 2 | -.17 | .93 | |
| **Child-related home activities** | K | .14 | .95 | $p$=.95 |
| | 1 | .11 | .84 | |
| | 2 | .13 | 1.03 | |
| **Expectations for child's highest year of education** | K | .01 | .98 | $p$=.98 |
| | 1 | -.02 | .99 | |
| | 2 | -.01 | .95 | |
| **Expectations for child performance next year** | K | .09 | .92 | $p$=.15 |
| | 1 | .13 | .95 | |
| | 2 | -.12 | 1.05 | |

*Note.* $n$ =72, *SD* = standard deviation.

[1] The subscale scores were standardized on the basis of each year's sample ($n$ =179 for kindergarten, 264 for Grade 1, and 305 for Grade 2), so that each year's mean=0 and standard deviation =1.

**Table A7. Cohort 1, Grade 3: Special Services Received, by Group**

| Special Services Received | MSRP Group | No-Program Group |
|---|---|---|
| Compensatory education | 18.9% | 20.7% |
| Placement in special education | 11.7% | 9.3% |
| Appointments with a reading specialist | 5.0% | 5.0% |
| Consultation/tutoring for a learning disability | 5.8% | 3.3% |

***Note.*** $n = 244$ for the MSRP group and 184 for the no-program group

**Table A8. Cohort 2, Grade 2: Days Absent, by Group**

| Group | *n* | Mean | Standard Deviation |
|---|---|---|---|
| MSRP | 142 | 9.08 | 8.80 |
| No-program | 113 | 11.07 | 10.00 |
| Head Start | 105 | 10.36 | 8.79 |

***Note.*** A nearly significant difference ($p<.10$) was found between the MSRP and no-program groups in the analysis without background adjustment, but no significant difference was found after controlling for the key background variables.

**Table A9. Cohort 2, Grade 2: Special Services Received, by Group**

| Special Services Received | MSRP | No-Program | Head Start |
|---|---|---|---|
| Compensatory education | 42.7% | 37.7% | 51.7% |
| Placement in special education | 5.9% | 9.6% | 12.1% |
| Appointments with a reading specialist | 7.3% | 1.7% | 1.7% |
| Consultation/tutoring for a learning disability | 2.0% | 6.0% | 6.9% |

***Note.*** $n = 152$ for the MSRP group, $n=115$ for the no-program group, and $n=116$ for the Head Start group. No significant difference was found for any variable in the analyses with background adjustment, although a significant difference was found for *appointments with a reading specialist* in the simpler chi-square analysis.